

What is claimed is:

1. A composition of matter comprising  $^{195\text{m}}\text{Pt}$  characterized by a specific activity of at least 30 mCi/mg Pt.
2. A composition of matter in accordance with claim 1 further characterized by a specific activity of at least 50 mCi/mg Pt.
3. A composition of matter in accordance with claim 2 further characterized by a specific activity of at least 70 mCi/mg Pt.
4. A composition of matter in accordance with claim 3 further characterized by a specific activity of at least 90 mCi/mg Pt.
5. High-specific-activity  $^{195\text{m}}\text{Pt}$  made by a method comprising the steps of:
  - a. exposing  $^{193}\text{Ir}$  to a flux of neutrons sufficient to convert a portion of said  $^{193}\text{Ir}$  to  $^{195\text{m}}\text{Pt}$  to form an irradiated material;
  - b. dissolving said irradiated material to form an intermediate solution comprising Ir and Pt; and
  - c. separating said Pt from said Ir by cation exchange chromatography to produce a product comprising  $^{195\text{m}}\text{Pt}$ .
6. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 5 wherein said dissolving step is carried out at a temperature of at least 210°C.
7. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 6 wherein said dissolving step is carried out at a temperature of at least 217°C.
8. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 5 wherein said intermediate solution further comprises *aqua regia*.

9. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 5 wherein said separating step further comprises the steps of:
- a. loading said intermediate solution onto a cation exchange column;
  - b. eluting said Pt with a first eluent solution comprising HCl and thiourea.
  - c. eluting said Pt with an essentially thiourea-free second eluent solution comprising HCl.
10. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 5 wherein said  $^{195\text{m}}\text{Pt}$  product is characterized by a specific activity of at least 30 mCi/mg Pt.
11. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 10 wherein said  $^{195\text{m}}\text{Pt}$  product is further characterized by a specific activity of at least 50 mCi/mg Pt.
12. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 11 wherein said  $^{195\text{m}}\text{Pt}$  product is further characterized by a specific activity of at least 70 mCi/mg Pt.
13. High-specific-activity  $^{195\text{m}}\text{Pt}$  in accordance with claim 12 wherein said  $^{195\text{m}}\text{Pt}$  product is further characterized by a specific activity of at least 90 mCi/mg Pt.